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7590 01/13/2004

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EXAMINER

RAO, SHRINIVAS H

| | |
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| ART UNIT | PAPER NUMBER |
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2814

DATE MAILED: 01/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/043,329

Applicant(s)

BAEK ET AL.

Examiner

Steven H. Rao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) 25-49 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 January 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Priority

Receipt is acknowledged of paper submitted under 35 U.S.C. 119(a)-(d), from Korean Patent Application No. 2001-12005 filed on March 08, 2001 which papers have been placed of record in the file.

Election/Restrictions

Claims 25-49 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected group, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 4.

Specification

Drawings

Figures 1a to 2B should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-3,6 ,13, 16-17, 20,22 and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by Baluswamy et al. (U. S. Patent No. 6,514, 643, herein after Baluswamy) .

With respect to claim 1 Baluswamy describes an overly key /comprising:

a first overlay key having a first main overlay pattern (Baluswamy fig. 5, 210, col. 3 line 6) and a first auxiliary overlay pattern; (baluswamy fig. 5 220, col. 3 line 4) and a second overlay key having a second main overlay pattern (Baluswamy fig. 5 230, col. 3 line 6) and a second auxiliary overlay pattern, the second auxiliary overlay pattern being

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formed at a location corresponding to the first auxiliary overlay pattern.(Baluswamy fig. 5 240)

With respect to claim 2 Baluswamy describes the overlay key of claim 1, wherein the first and second overlay keys have a frame shape. (Baluswamy fig. 5, 210, 230).

With respect to claim 3 Baluswamy describes the overlay key of claim 2, wherein the first auxiliary overlay pattern is formed at a corner portion of the first overlay key. (Baluswamy fig. 5 220 formed in corner of 210).

With respect to claim 6 Baluswamy describes the overlay key of claim 1, wherein the first auxiliary overlay pattern includes a plurality of bar patterns spaced apart from each other. (Baluswamy fig. 5 220).

With respect to claim 13 describes the overlay key of claim 2, wherein the first auxiliary overlay pattern is formed at a location adjacent to a corner portion of the first overlay key. (Baluswamy fig. 5, 220 adjacent to corner of 210).

With respect to claim 16 describes the overlay key of claim 1, wherein the first and second overlay keys have a substantially rectangular shape. (Baluswamy figure 5, 210, 230).

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With respect to claim 17 describes the overlay key of claim 16, wherein the first auxiliary overlay pattern is formed on a corner portion of the first overlay key. (rejected for the same reasons as stated under claim 3 above).

With respect to claim 22 describes the overlay key of claim 21, wherein the first main overlay pattern is defined by imaginary lines extended from two parallel outside lines of the second main overlay pattern. (rejected for the same reasons as claim 5).

With respect to claim 24 describes and overlay key, comprising:
a first overlay key including a first main overlay pattern and a first auxiliary overlay pattern; and a second overlay key including a second main overlay pattern and a second auxiliary overlay pattern, wherein the first and second overlay keys are formed at a location wherein a location of the first and second main overlay keys do not correspond to each other. (Baluswamy figure 5).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 4-5,7-12,14-15, 18-19, 21and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baluswamy et al. (U. S. Patent No. 6,514, 643, herein after Baluswamy) as applied to claims 1-3 etc. above and further in view of Smith et al. (U.S. Patent No. 6,573,986, herein after Smith)..

With respect to claim 4 Baluswamy describes the overlay key of claim 3.

Baluswamy does not describe a length of the first main overlay pattern is equal to a length of a corresponding side of the second main overlay pattern.

However, Smith a patent from the same filed of endeavor describes in figure 1 a plurality of box marks having a length of the first main overlay pattern is equal to a length of a corresponding side of the second main overlay pattern to from high precision overlay meterology tool for local measurements and extracts the global lens distortion data in the described invented way the keep the error near unity and further the overlay techniques can be used in conjunction with traditional methods to better understand model and correct pattern placement errors.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include Smith's marks having a length of the first main overlay pattern is equal to a length of a corresponding side of the second main overlay pattern In Baluswamy's device to from high precision overlay meterology tool for local measurements and extracts the global lens distortion data in the described invented way the keep the error near unity and further the overlay techniques can be used in conjunction with traditional methods to better understand model and correct pattern placement errors. (Smith col. 6 lines 20-35).

With respect to claim 5 Baluswamy describes the overlay key of claim 4, wherein the first main overlay pattern is defined by imaginary lines extended from two parallel outside lines of the second main overlay pattern. (Baluswamy fig.5 210 parallel to 230).

With respect to claim 7 Baluswamy describes the overlay key of claim 6, wherein the second auxiliary overlay pattern includes a plurality of hole patterns spaced apart from each other. (Smith fig. 1).

With respect to claim 8 describes the overlay key of claim 7, wherein an interval between two adjacent bar patterns is larger than a width of the hole pattern. (Smith figure 1) .

With respect to claim 9 describes the overlay key of claim 6, wherein the second auxiliary overlay pattern includes a plurality of second bar patterns having a smaller width than the bar patterns. (Smith fig.1 big box b and small box A).

With respect to claim 10 describes the overlay key of claim 1, wherein the first auxiliary overlay pattern includes a plurality of hole patterns. (Smith figure 3).

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With respect to claim 11 Baluswamy describes the overlay key of claim 10, wherein the second auxiliary overlay pattern includes a plurality of bar patterns. (Baluswamy fig. 5 , 240).

With respect to claim 12 describes the overlay key of claim 11, wherein a width of the hole pattern of the first auxiliary overlay pattern is larger than a width of the bar pattern of the second auxiliary overlay pattern. (Smith figure 20).

With respect to claim 14 Baluswamy describes the overlay key of claim 13, wherein a length of the first main overlay pattern is equal to a length of a corresponding side of the second main overlay pattern. (Smith figure 1, 14).

With respect to claim 15 Baluswamy describes the overlay key of claim 14, wherein the first main overlay pattern is defined by imaginary lines extended from two parallel outside lines of the second main overlay pattern. (rejected for same reasons as claim 5).

With respect to claim 18 describes the overlay key of claim 17, wherein a length of the first main overlay pattern is equal to a length of a corresponding side of the second main overlay pattern. (Smith figure 1, 14).

With respect to claim 19 describes the overlay key of claim 18, wherein the first main overlay pattern is defined by imaginary lines extended from two parallel outside lines of the second main overlay pattern. (rejected for the same reasons as claim 5 above).

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With respect to claim 20 describes the overlay key of claim 16, wherein the first auxiliary overlay pattern is formed at a location adjacent to a corner portion of the first overlay key. (rejected for the same reasons as claim 13).

With respect to claim 21 describes the overlay key of claim 20, wherein a length of the first main overlay . pattern is equal to a length of a corresponding side of the second main overlay pattern. (Smith figure 1, 14).

With respect to claim 23 Baluswamy describes the overlay key of claim 1, wherein the first and second main overlay patterns are for measuring an overlay degree using an optical microscope, and the first and second auxiliary overlay patterns are for measuring an overlay degree using an inline SEM (scanning electron microscope). (Smith page 2 Hasan et al article).

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Steven H. Rao whose telephone number is (703) 306-5945. The examiner can normally be reached on Monday- Friday from approximately 7:00 a.m. to 5:30 p.m.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0956. The Group facsimile number is (703) 308-7724.


01/06/03

